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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

MAY 21 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In re Applications of)	MM DOCKET NO. 93-126
)	
EDUCATIONAL MEDIA FOUNDATION OF)	File No. BPED-910924MC
BRYAN/COLLEGE STATION (Channel 210A))	
Bryan, Texas)	
)	
BRAZOS EDUCATIONAL RADIO)	File No. BPED-920413MF
Channel 209)	
College Station, Texas)	
)	
For Construction Permit for a New)	
Noncommercial Educational FM Station)	

TO: The Honorable John M. Frysiak
Administrative Law Judge

JOINT MOTION FOR SUSPENSION OF PROCEDURAL DATES

1. Educational Media Foundation of Bryan/College Station ("EdMed") and Brazos Educational Radio ("Brazos") hereby jointly move for a suspension of procedural dates in the above-captioned proceeding in order to permit the applicants to finalize a settlement arrangement which, it is contemplated, would permit both applicants to receive non-mutually exclusive FM authorizations without hearing.

2. The Hearing Designation Order in this proceeding was released on May 5, 1993. Both EdMed and Brazos have filed their respective notices of appearance in response thereto. Additionally, and more importantly, EdMed and Brazos have tentatively agreed to resolve their differences through a settlement pursuant to which one (and possibly both) applicants would amend their applications so as to eliminate their mutual exclusivity. The precise details of this arrangement, including

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a number of engineering questions which must be considered and resolved, have not yet been finalized by the applicants.

However, the matter is under active consideration by both applicants' engineers, and it is expected that the arrangement will be finalized within the next two-three weeks. ^{1/}

3. On May 17, 1993, the Presiding Judge issued an Order Prior to Prehearing Conference, FCC 93M-263, in which he established a number of deadlines for, inter alia, production of documents and initiation of discovery. ^{2/} But no discovery (or other adjudicatory proceedings) should be necessary if, as the parties contemplate, a settlement of this proceeding is likely to be reached imminently. Suspension of all pending deadlines would thus make sense. Further, such a suspension would permit the Commission and the parties to preserve their resources and to

^{1/} For the Court's information, attached hereto is a copy of the basic proposal the applicants are considering. This demonstrates that a settlement which would permit both applicants to be granted a construction permit is feasible. The details which remain to be resolved include which applicant would take which channel, whether any relocation (or possibly colocation) of the transmitters might be preferable and/or feasible, and the like. The applicants have these matters under active consideration, and both applicants are committed to expedited resolution of all these questions.

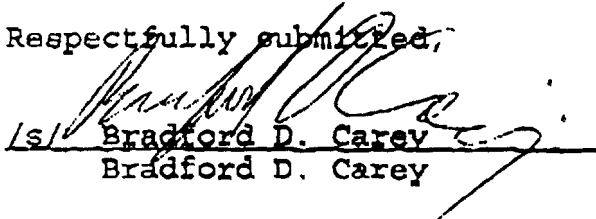
^{2/} The Order Prior to Prehearing Conference included a number of references to rules and procedures which appear to relate to commercial, rather than noncommercial, proceedings. A representative of the Presiding Judge contacted undersigned counsel and advised them to ignore such references. However, it is still not clear which of the established deadlines may still be in effect. Suspension of all procedural dates, as requested herein, would obviate the need for any further clarification of that difficulty. Nevertheless, since the Order Prior to Prehearing could be read to establish May 28 as the deadline for Standard Document Production (if such production were deemed to be applicable to noncommercial proceedings -- a question as to which the applicants are uncertain), the applicants request that the

focus their attentions on the settlement process.

4. Counsel for the Mass Media Bureau has been apprised of the applicants' intentions; undersigned counsel understand that counsel for the Mass Media Bureau has no objection to the instant Motion.

WHEREFORE, for the reasons stated Educational Media Foundation of Bryan/College Station and Brazos Educational Radio hereby request that all procedural deadlines in the above-captioned proceeding be suspended for not less than 60 days in order to permit agreement on and submission of a settlement which would, if approved, result in amendment of one or both applications and, thereafter, grant of both applications.

Respectfully submitted,


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May 21, 1993

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ENGINEERING REPORT

PREPARED FOR

BRAZOS EDUCATIONAL RADIO

5 MARCH 1992

I have been retained as technical counsel by Brazos Educational Radio to examine the situation involving two mutually exclusive applications for construction permits to build new non-commercial educational FM stations in the Bryan/College Station, Texas, area, and to make recommendations for a technical solution to resolve the conflict, if possible.

BACKGROUND

Educational Media Foundation

On 24 September 1991 the FCC accepted for tendering an application by Educational Media Foundation of Bryan/College Station ("Educational Media") for a permit to construct a new non-commercial educational radio station at Bryan, Texas, file number BPED-910924MC. The applicant proposed operation on channel 210 at 100 watts ERP at 101 meters HAAT at 30° 39' 37" north latitude, 96° 25' 1" west longitude. The antenna was to be mounted at the 96 meter level of an existing 152 meter tower. The applicant has since made several minor amendments to this application.

Facilities on this channel at this location are limited by interference considerations to TV channel 6, KCEN(TV), Temple, Texas, some 103 kilometers distant. A Petition to Deny or Hold in Abeyance, dated 14 April 1992, was served on Educational Media by KCEN(TV), claiming errors in the method by which the interference area was calculated and requesting that the population of the entire interference area before adjustment be included in the application.^{1/} Educational

^{1/} The Petition to Deny or Hold in Abeyance was filed with the FCC on 14 April 1992 and signed by Robert M.

[REDACTED]

[REDACTED]

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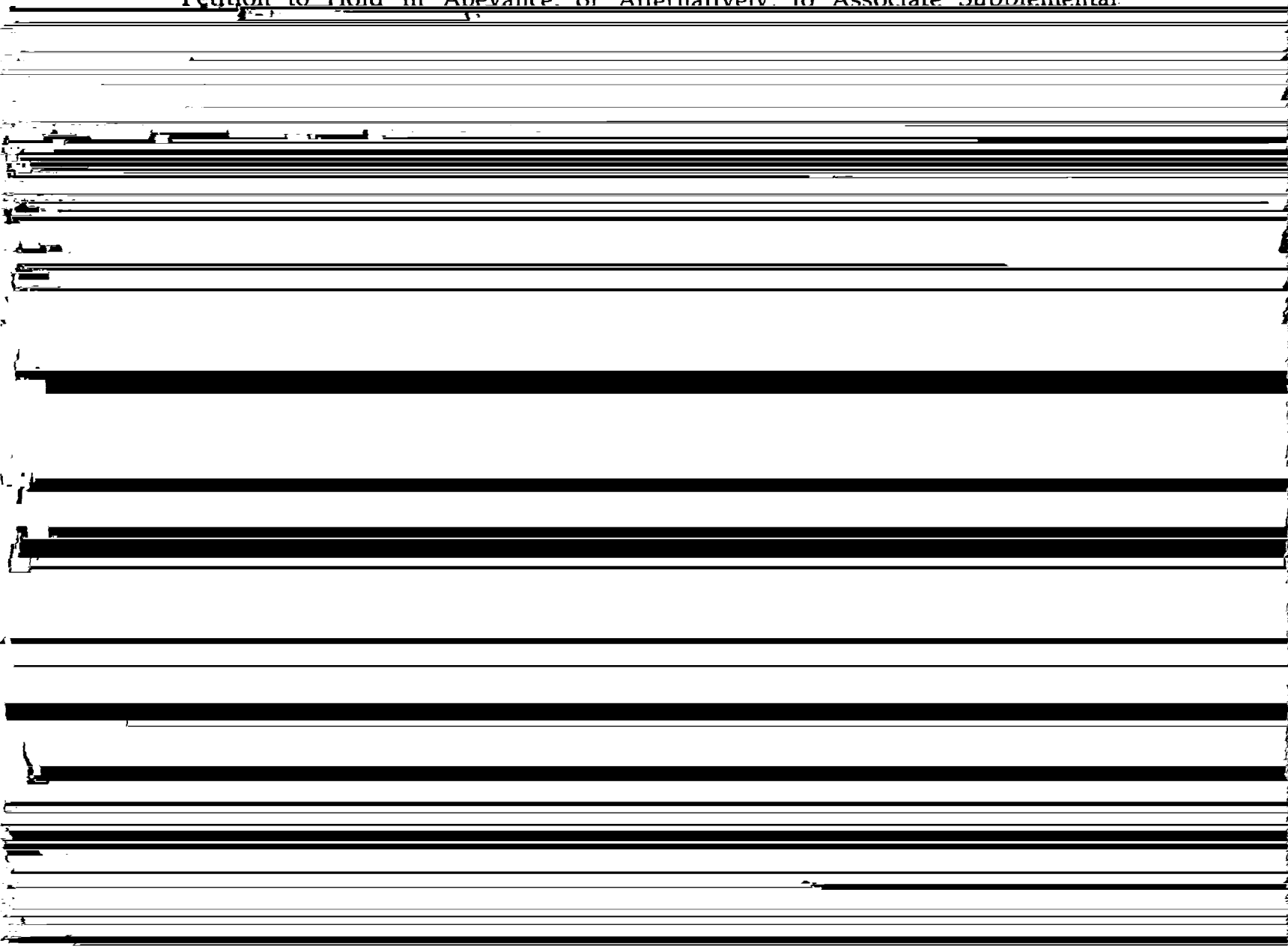
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[REDACTED]

Brazos Educational Radio

On 13 April 1992 the FCC accepted for tendering an application by Brazos Educational Radio ("Brazos") for a permit to construct a new non-commercial educational FM station at College Station, Texas, file number BPED-920413MF. Brazos proposed operation on channel 209 at 200 watts ERP at 56 meters HAAT at 30° 38' 43" north latitude, 96° 21' 26" west longitude. The antenna was to be side mounted at 46 meter level of an existing 103 meter tower. This tower supports the antenna of TV translator K63DL and is 6.0 kilometers ESE of the structure proposed in Educational Media's application. The applicant has since made several minor amendments to this application.

Facilities on this channel at this location are also limited by interference considerations to TV Channel 6, KCEN(TV), Temple, Texas. KCEN(TV) served a Petition to Hold in Abeyance or Alternatively to Associate Supplemental



comparative hearing.

This office was retained by Brazos in an effort to find a technical solution to the mutual interference problem in order to make a proposal to Educational Media to resolve the conflict.

In undertaking this study, our goal was to be able to present to both parties a solution that would not only satisfy the concerns of the Commission, but would actually be an improvement over the proposed facilities. We believe we have been able to do this as outlined below.

ALLOCATION CONSIDERATIONS

A complete allocation analysis of the reserved spectrum as regards other FM allocations and assignments revealed: channels 220 through channel 212 were not available due to a local assignment on channel 215 and a local allocation on channel 221; channel 211 is unavailable because of co-channel assignment KPFT, Houston; channel 208 is unavailable because of co-channel application KMFA, Austin; 207 is unavailable because of co-channel assignment KSBJ, Humble; and channel 204 is unavailable because of co-channel assignment KUHF, Houston. This leaves channels 210, 209, 206, 205, 203, 202, and 201.

All of the above available channels are subject to channel 6 interference considerations. The size of the predicted channel 6 interference area increases as the interfering station's frequency decreases, other things being equal. Alternatively, for equal interference areas from the same location, as the interfering station's frequency decreases, its power and/or HAAT must be decreased. Assuming it is desired to maximize the proposed facilities, it is best to select higher frequency channels than lower. The rules do not allow the adjusted population in the predicted channel 6 interference area to exceed 3000. Two tactics to minimize the population in the interference area are; to locate the interfering station such that the predicted interference area falls in an area of relatively low population; or to locate the interfering station such that the maximum downward adjustment can be made to the population figure. Educational Media chose the former technique in its

proposed facilities, the transmitter being located somewhat west of Bryan and College Station. Brazos chose the latter technique by collocating with the channel 6 translator, thus allowing the maximum adjustment to its population figure.

The problem with locating the transmitter away from populated areas is that by doing so the service contour is also moved away. This is the case in the current situation. Even though Educational Media's service contour is 30% larger than Brazos' (353 square kilometers compared to 271), the population under their 60 dbu service contour is about 30% smaller (76,529 compared to 107,253). In the current situation it seems clear that there is advantage to collocating with the channel 6 translator.

PROPOSED SOLUTION

The solution that looks most promising is to collocate Educational Media and Brazos at the channel 6 translator site on channels 206 and 210 respectively. The Grade A service contour for K63DL is located approximately 6.8 kilometers from the site (See Figure 1). The power and EIRP for both stations should be set such that

vertical/horizontal splits of up to 90%/10% are commercially available at about \$2,500 over the base cost of an equivalent circularly polarized antenna. Assuming a 90%/10% split, Educational Media could operate at 568 watts V and 63.2 watts H, and Brazos could operate 947 watts V and 105 watts H. (See Exhibits VI & VII for coverage contours.)

K63DL			
DISTANCES TO CONTOURS (Kilometers):			
Frequency: 767 MHz			
Coordinates: N 30 38 43 W 96 21 26			
RCAMSL: 157 m			
AZ	HAAT	ERP	CONTOUR LEVELS (dbμ):
(deg)	(m)	(kW)	74.0 F(50,50)
.0	56	.95	6.1
45.0	66	.95	6.6
90.0	75	.95	7.0
135.0	69	.95	6.7
180.0	76	.95	7.0
225.0	87	.95	7.5
270.0	78	.95	7.1
315.0	62	.95	6.4

Figure 1. Grade A Service Contour, Channel 6 Translator

ENGINEERING REPORT BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Gray Frierson Haertig
Milwaukie, Oregon

Page 1
March 4, 1993

FM Interference study

Title: Educational Media Fndtn. of Bryan Latitude: 30-38-43
Channel 206A (89.1 MHz) ERP: 1.20 kW; EAH: 50 m Longitude: 96-21-26
Database: FCC 01/26/93 Safety zone: 30 km

Call	Auth	Licensee name	Chan	ERP-kW	Latitude	Br-to	Dist. Req.
City of License	St	FCC File no.	Freq	EAH-m	Longitude	-from	(km) (km)
KUHF	LIC	University of Houston	*204C	100	29-34-28	144.9	145.0 91.92
Houston		TX	88.7	514	95-29-37	325.3	53.05 CLEAR
		Proposed F(50,50)				60 dBu =	87.55 km
		Proposed F(50,50)				80 dBu =	46.05 km
KLDN	LIC	Board of Supervisors of	*205C1	50DA	31-24-28	60.4	174.0 98.14
Lufkin		TX	88.9	198	94-45-53	241.2	75.83 CLEAR
		DA: oddball ODD900809IA @ 0 deg					
		Proposed F(50,10)				60 dBu =	57.19 km
		Proposed F(50,50)				54 dBu =	84.57 km
KSTX	LIC	Board of Directors of Te	*206C1	100	29-31-25	241.9	259.8 175.4
San Antonio		TX	89.1	200	98-43-25	60.7	84.42 CLEAR
		Proposed F(50,10)				60 dBu =	63.80 km
		Proposed F(50,50)				40 dBu =	161.8 km
KSBJ	LIC	Something Better Educ Fo	*207C1	100	30-12-26	111.5	131.0 114.2
Humble		TX	89.3	255	95-05-28	292.2	16.75 CLEAR
		Proposed F(50,10)				60 dBu =	68.66 km
		Proposed F(50,50)				54 dBu =	100.6 km
KMFA	LIC	Capitol Broadcasting Ass	*208C2	6.60	30-19-33	256.0	142.9 48.63
Austin		TX	89.5	268	97-47-58	75.2	94.30 CLEAR
		WAIVER REQUEST TO REMAIN CLASS C PENDING (870227OW)					
		Proposed F(50,50)				60 dBu =	44.26 km
		Proposed F(50,50)				80 dBu =	15.21 km
NEW	APC	Brazos Educatgional Radi	*209A	.20	30-38-43	.0	14.51
College Station		TX	89.7	56	96-21-26	.0	-14.5 SHORT
		Cut-off 09/30/92					
		Proposed F(50,50)				60 dBu =	9.316 km
		Proposed F(50,50)				100 dBu =	.937 km
KCEY	CP	Helen Maryse Casey	259A	3	30-41-57	84.8	68.99 10
Huntsville		TX BPH-881222MB	99.7	100	95-38-24	265.2	58.99 CLEAR
		DOC-90-300					
WACO-FM	LIC	SBG Communications of Te	260C	90	31-20-15	310.5	119.1 29
Waco		TX BLH-901116KD	99.9	506	97-18-37	130.0	90.06 CLEAR

>> End of channel 206A study <<

Figure 2
Allocation Analysis, Educational Media Foundation

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ENGINEERING REPORT BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Gray Frierson Haertig
Milwaukie, Oregon

Page 1
March 4, 1993

FM Interference study

Title: Brazos Educational Radio
Channel 210A (89.9 MHz) ERP: 2 kW; EAH: 56 m
Database: FCC 01/26/93

Latitude: 30-38-43
Longitude: 96-21-26
Safety zone: 30 km

Call	Auth	Licensesee name	Chan	ERP-kW	Latitude	Br-to	Dist.	Req.
City of License	St	FCC File no.	Freq	EAH-m	Longitude	-from	(km)	(km)
KSBJ	LIC	Something Better Educ Fo	*207C1	100	30-12-26	111.5	131.0	70.34
Humble		TX	89.3	255	95-05-28	292.2	60.63	CLEAR
Proposed F(50,50) 100 dBu = 1.676 km; KSBJ F(50,50) 60 dBu = 68.66 km								
Proposed F(50,50) 60 dBu = 16.39 km; KSBJ F(50,50) 100 dBu = 9.342 km								
KMFA	LIC	Capitol Broadcasting Ass	*208C2	6.60	30-19-33	256.0	142.9	49.47
Austin		TX	89.5	268	97-47-58	75.2	93.46	CLEAR
WAIVER REQUEST TO REMAIN CLASS C PENDING (870227OW)								
Proposed F(50,50) 80 dBu = 5.218 km; KMFA F(50,50) 60 dBu = 44.26 km								
Proposed F(50,50) 60 dBu = 16.39 km; KMFA F(50,50) 80 dBu = 15.21 km								
NEW	APC	Brazos Educatgional Radi	*209A	.20	30-38-43	.0		33.60
College Station		TX	89.7	56	96-21-26	.0	-33.6	SHORT
Cut-off 09/30/92								
Proposed F(50,10) 54 dBu = 24.28 km; NEW F(50,50) 60 dBu = 9.316 km								
Proposed F(50,50) 60 dBu = 16.39 km; NEW F(50,50) 54 dBu = 13.01 km								
NEW	APC	Educational Media Founda	*210A	.10	30-39-37	286.3	5.961	69.64
Bryan		TX	89.9	101	96-25-01	106.3	-63.7	SHORT
Cut-off 04/14/92								
Proposed F(50,10) 40 dBu = 59.26 km; NEW F(50,50) 60 dBu = 10.38 km								
Proposed F(50,50) 60 dBu = 16.39 km; NEW F(50,10) 40 dBu = 35.10 km								
KPFT	LIC	Pacifica Foundation	*211C1	100	29-55-26	135.4	112.3	101.9
Houston		TX	90.1	132BT	95-32-17	315.8	10.43	CLOSE
CLASS C1 PER REQUEST OF APPLICANT								
Proposed F(50,10) 54 dBu = 24.28 km; KPFT F(50,50) 60 dBu = 55.97 km								
Proposed F(50,50) 60 dBu = 16.39 km; KPFT F(50,10) 54 dBu = 85.46 km								
KBJS	LIC	East Texas Media Associa	*212A	3	31-58-16	34.9	180.1	27.10
Jacksonville		TX	90.3	81	95-15-51	215.4	153	CLEAR
*To Channel 212C								
Proposed F(50,50) 80 dBu = 5.218 km; KBJS F(50,50) 60 dBu = 21.88 km								
Proposed F(50,50) 60 dBu = 16.39 km; KBJS F(50,50) 80 dBu = 6.879 km								
KSHU	LIC	Sam Houston State Univer	*213A	3	30-42-50	84.2	77.78	23.03
Huntsville		TX	90.5	77	95-32-58	264.6	54.75	CLEAR
FROM CHANNEL 207								
Proposed F(50,50) 100 dBu = 1.676 km; KSHU F(50,50) 60 dBu = 21.35 km								
Proposed F(50,50) 60 dBu = 16.39 km; KSHU F(50,50) 100 dBu = 2.142 km								

Figure 3 (Continued)

ENGINEERING REPORT
BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Gray Frierson Haertig
Milwaukie, OregonPage 2
March 4, 1993

FM Interference study

Title: Brazos Educational Radio Latitude: 30-38-43
Channel 210A (89.9 MHz) ERP: 2 kW; EAH: 56 m Longitude: 96-21-26
Database: FCC 01/26/93 Safety zone: 30 km

Call	Auth	Licensee name	Chan	ERP-kW	Latitude	Br-to	Dist.	Req.
City of License		St FCC File no.	Freq	EAH-m	Longitude	-from	(km)	(km)
PRM	ADD	Fayette Broadcasting Cor	263C3		31-32-53	58.7	195.8	12
Redland		TX DOC-89-459	100.5		94-35-38	239.6	183.8	CLEAR
Site Restricted 19.8KM Northeast								

Power Watts	Service Area Square Km.	Service Population	Percent Increase Over Current Prop.
200	270.7	107,253	0%
947	576.0	114,333	6.6%
2,000	846.1	116,507	8.6%

Figure 5
Service Areas and Populations, Brazos Educational Radio

If Educational Media and Brazos choose to collocate they will have to pay particular attention to the potential of generating intermodulation products in their respective transmitters. The accompanying allocation analyses presupposed that the radiation centers of the antennas were separated by 6 meters vertically, which translates to a 3 meter separation between the bottom element of one antenna and the top element of the second (assuming two element antennas). This is probably not sufficient separation to guarantee that intermodulation products will not occur. Prudently the antennas should be separated vertically by at least 15 meters. Assuming the top antenna is at 46 meters (as specified in Brazos' current application) the second antenna would then be at 31 meters. Lesser separations can be tolerated if the stations insert either notch or bandpass cavity filters in their output transmission lines. (Even at 15 meters separation, measurements after installation may reveal that some filtering is required.) Because of the close frequency separation between the stations, rather sophisticated filters would be required. The two parties may well wish to explore the possibility of sharing a common antenna and using a two port star point power combiner. The inherent high isolation of a well designed combiner will assure the absence of intermodulation products. This presupposes that the two parties can agree on the number of elements and the axial ratio of the antenna. Costs should be similar to separate antennas and filters to eliminate intermodulation products.

I have taken the liberty of approaching Microwave Filter Company for a quote on the price of the combiner, and Robert Surette of Shively Laboratories for a quote on the price of a 2 element 6813-2 antenna with 90%/10% power ratio broadbanded for

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TELECOMMUNICATIONS ENGINEERING

both stations. Microwave filter can supply the combiner for about \$6,000 FOB Syracuse, NY. The combiner has four 12" cavities per station and is approximately 2' wide, 8' deep and 3' high. It will provide 30 db isolation between input ports and have an on channel insertion loss of less than 1 db. To maintain spurious radiation 70 db or better below carrier, the transmitter must have a turn around loss of at least 20db. (30 db of filter rejection to other station + 20 db turn around loss + 30 db filter rejection of intermod product = 80 db.) Many solid state transmitters cannot meet this specification. Due to the particular output combining topology of the Broadcast Electronics 1C (1 kilowatt), it can achieve a 30 db turn around loss. I expect that their 500C (500 watt) unit will be similar, but testing will not be completed until the end of March 1993. I know that the Continental and TTC transmitters will not meet the turn around loss spec.

The antenna will cost about \$10,500, FOB Bridgton, ME, if purchased directly from Shively. The broadbander consists of three 20' 1-5/8" transmission line sections and an additional fine matching transformer section. This means that the antenna must be above the 80' level on the tower. For an extra \$1,000 Shively will optimize the tuning of the Microwave Filter combiner. I recommend this because of the difficulty in properly tuning these filters and Shively's extensive experience in combiner tuning. (They have made some of the largest high power FM combines in the world. Unfortunately, they do not manufacture a line of low power combiners.)

It is likely that either or both operations will desensitize the input section of the K63DL translator, causing interference. Careful attention needs to be paid to maintaining as great a separation between the FM transmitting antennas and the K63DL receiving antenna as possible, consistent with existing tower loading and received channel 6 signal strength. Brazos and/or Educational Media may well need to supply notch filters to channel 6 to install in the translator receive transmission line. Very narrow notch filters with low insertion loss can be purchased from the Microwave Filter Company for about \$50. These should have 40-50 db attenuation at the FM carrier frequency and a 3 db bandwidth of no more than 2 MHz.

ENGINEERS STATEMENT

I have been retained by Brazos Educational Radio to investigate potential solutions to resolve a conflict between applications for permits by Brazos Educational Radio and Educational Media Foundation of Bryan/College Station to construct new non-commercial FM radio stations at Bryan and College Station, Texas.

This report has been prepared entirely by me, and all statements not attributed to others are true to the best of my knowledge and accurately reflect the facts of the matter.

I am a Broadcast Engineer of 26 years experience and my qualifications are a matter of record with The Commission.

Respectfully submitted this 8th day of March, 1993,

Gray Frierson Haertig

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Exhibit I
Channel 6 Interference Prediction, Educational Media FoundationGray Frierson Haertig
Milwaukie, OregonPage 1
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference		----- KCEN Channel 6 -----						----- Proposed Ch. 206 -----					
--- Site ---		C/R 577 m AAT						C/R 50 m AAT					
Lat 30-38-43		Latitude: 31-16-24						Latitude: 30-38-43					
Lon 96-21-26		Longitude: 97-13-14						Longitude: 96-21-26					
Bear. (deg)	Dist (km)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	U/D (dB)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	
.0	3.6	128.6	106	601	100	54.7	15.2*	.0	3.58	35.2	.12	69.8	
1.0	3.6	128.6	106	601	100	54.7	15.2*	1.0	3.59	35.4	.12	69.9	
2.0	3.6	128.6	106	601	100	54.6	15.2*	2.0	3.60	35.7	.12	69.9	
3.0	3.6	128.5	106	601	100	54.6	15.2*	3.0	3.62	35.9	.12	69.8	
4.0	3.6	128.5	106	601	100	54.6	15.3*	4.0	3.63	36.1	.12	69.8	
5.0	3.6	128.5	106	601	100	54.6	15.3*	5.0	3.64	36.3	.12	69.8	
6.0	3.7	128.4	106	601	100	54.6	15.3*	6.0	3.66	36.6	.12	69.8	
7.0	3.7	128.4	106	601	100	54.6	15.3*	7.0	3.67	36.8	.12	69.8	
8.0	3.7	128.4	106	601	100	54.5	15.3*	8.0	3.68	37.0	.12	69.8	
9.0	3.7	128.4	106	601	100	54.5	15.3*	9.0	3.70	37.3	.12	69.8	

ENGINEERING REPORT BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 2
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference		----- KCEN Channel 6 -----						----- Proposed Ch. 206 -----					
--- Site ---		C/R 570 m AAT						C/R 50 m AAT					
Lat 30-38-43		Latitude: 31-16-24						Latitude: 30-38-43					
Lon 96-21-26		Longitude: 97-13-14						Longitude: 96-21-26					
Bear. (deg)	Dist (km)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	U/D (dB)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	
45.0	4.2	127.9	108	601	100	53.7	15.9*	45.0	4.18	45.5	.12	69.6	
46.0	4.2	127.9	108	601	100	53.7	15.9*	46.0	4.19	45.7	.12	69.6	
47.0	4.2	127.9	109	601	100	53.7	15.9*	47.0	4.20	45.9	.12	69.6	
48.0	4.2	127.9	109	601	100	53.6	15.9*	48.0	4.21	46.1	.12	69.6	
49.0	4.2	127.9	109	601	100	53.6	15.9*	49.0	4.23	46.2	.12	69.5	
50.0	4.2	127.9	109	601	100	53.6	16.0*	50.0	4.24	46.4	.12	69.5	
51.0	4.2	127.9	109	601	100	53.6	16.0*	51.0	4.25	46.6	.12	69.5	
52.0	4.3	127.9	109	601	100	53.5	16.0*	52.0	4.26	46.8	.12	69.5	
53.0	4.3	127.9	109	601	100	53.5	16.0*	53.0	4.27	47.0	.12	69.5	
54.0	4.3	127.9	109	601	100	53.5	16.0*	54.0	4.28	47.2	.12	69.5	
55.0	4.3	127.9	109	601	100	53.5	16.1*	55.0	4.30	47.4	.12	69.5	
56.0	4.3	127.9	109	601	100	53.4	16.1*	56.0	4.31	47.6	.12	69.5	
57.0	4.3	127.9	109	601	100	53.4	16.1*	57.0	4.32	47.7	.12	69.5	
58.0	4.3	127.9	109	601	100	53.4	16.1*	58.0	4.33	47.9	.12	69.5	
59.0	4.3	127.9	109	601	100	53.4	16.1*	59.0	4.34	48.1	.12	69.5	
60.0	4.3	127.9	109	601	100	53.3	16.1*	60.0	4.35	48.3	.12	69.5	
61.0	6.1	127.1	110	601	100	53.1	10.3	61.0	6.14	48.5	.12	63.4	
62.0	6.2	127.1	110	601	100	53.0	10.4	62.0	6.15	48.7	.12	63.4	
63.0	6.2	127.1	110	601	100	53.0	10.4	63.0	6.17	48.9	.12	63.4	
64.0	6.2	127.1	111	601	100	53.0	10.4	64.0	6.18	49.1	.12	63.4	
65.0	6.2	127.2	111	601	100	52.9	10.5	65.0	6.20	49.2	.12	63.4	
66.0	6.2	127.2	111	601	100	52.9	10.5	66.0	6.21	49.4	.12	63.4	
67.0	6.2	127.2	111	601	100	52.9	10.5	67.0	6.23	49.6	.12	63.4	
68.0	6.2	127.2	111	601	100	52.8	10.5	68.0	6.24	49.8	.12	63.4	
69.0	6.3	127.2	111	601	100	52.8	10.6	69.0	6.26	50.0	.12	63.3	
70.0	6.3	127.3	111	601	100	52.7	10.6	70.0	6.27	50.2	.12	63.3	
71.0	6.3	127.3	111	601	100	52.7	10.6	71.0	6.29	50.4	.12	63.3	
72.0	6.3	127.3	111	601	100	52.7	10.7	72.0	6.30	50.6	.12	63.3	
73.0	6.3	127.3	111	601	100	52.6	10.7	73.0	6.32	50.7	.12	63.3	
74.0	6.3	127.4	112	601	100	52.6	10.7	74.0	6.33	50.9	.12	63.3	
75.0	6.3	127.4	112	601	100	52.6	10.7	75.0	6.35	51.1	.12	63.3	
76.0	6.4	127.4	112	601	100	52.5	10.8	76.0	6.36	51.3	.12	63.3	
77.0	6.4	127.5	112	601	100	52.5	10.8	77.0	6.37	51.5	.12	63.3	
78.0	6.4	127.5	112	601	100	52.5	10.8	78.0	6.39	51.7	.12	63.3	
79.0	6.4	127.5	112	601	100	52.5	10.8	79.0	6.40	51.9	.12	63.3	
80.0	6.4	127.5	112	601	100	52.4	10.9	80.0	6.42	52.1	.12	63.3	
81.0	6.4	127.6	112	601	100	52.4	10.9	81.0	6.43	52.3	.12	63.3	
82.0	6.4	127.6	112	601	100	52.4	10.9	82.0	6.44	52.4	.12	63.3	
83.0	6.5	127.7	112	601	100	52.3	11.0	83.0	6.46	52.6	.12	63.3	
84.0	6.5	127.7	113	601	100	52.3	11.0	84.0	6.46	52.8	.12	63.3	
85.0	6.5	127.7	113	601	100	52.3	11.0	85.0	6.47	53	.12	63.3	
86.0	6.5	127.8	113	601	100	52.2	11.0	86.0	6.49	53.2	.12	63.3	
87.0	6.5	127.8	113	601	100	52.2	11.1	87.0	6.50	53.4	.12	63.3	
88.0	6.5	127.8	113	601	100	52.2	11.1	88.0	6.51	53.6	.12	63.3	
89.0	6.5	127.9	113	601	100	52.1	11.1	89.0	6.53	53.8	.12	63.2	

- GRAY FRIERSON HAERTIG -
TELECOMMUNICATIONS ENGINEERING

ENGINEERING REPORT BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 3
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference		----- KCEN Channel 6 -----						----- Proposed Ch. 206 -----					
--- Site ---		C/R 570 m AAT						C/R 50 m AAT					
Lat 30-38-43		Latitude: 31-16-24						Latitude: 30-38-43					
Lon 96-21-26		Longitude: 97-13-14						Longitude: 96-21-26					
Bear. (deg)	Dist (km)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	U/D (dB)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	
90.0	6.5	127.9	113	601	100	52.1	11.1	90.0	6.54	53.9	.12	63.2	
91.0	6.5	128.0	113	601	100	52.1	11.2	91.0	6.53	53.8	.12	63.3	
92.0	6.5	128.0	113	601	100	52.1	11.2	92.0	6.52	53.7	.12	63.3	
93.0	6.5	128.1	113	601	100	52.1	11.2	93.0	6.52	53.5	.12	63.2	
94.0	6.5	128.1	113	601	100	52.0	11.2	94.0	6.51	53.4	.12	63.2	
95.0	6.5	128.2	113	601	100	52.0	11.2	95.0	6.50	53.3	.12	63.2	
96.0	6.5	128.2	113	601	100	52.0	11.3	96.0	6.49	53.1	.12	63.2	
97.0	6.5	128.3	113	601	100	52.0	11.3	97.0	6.48	53	.12	63.2	
98.0	6.5	128.3	113	601	100	52.0	11.3	98.0	6.48	52.9	.12	63.2	
99.0	6.5	128.4	114	601	100	51.9	11.3	99.0	6.47	52.7	.12	63.2	
100.0	6.5	128.4	114	601	100	51.9	11.3	100.0	6.46	52.6	.12	63.2	
101.0	6.5	128.5	114	601	100	51.9	11.3	101.0	6.46	52.5	.12	63.2	
102.0	6.4	128.5	114	601	100	51.9	11.4	102.0	6.45	52.3	.12	63.2	
103.0	6.4	128.6	114	601	100	51.9	11.4	103.0	6.44	52.2	.12	63.2	
104.0	6.4	128.6	114	601	100	51.9	11.4	104.0	6.44	52.1	.12	63.2	
105.0	6.4	128.7	114	601	100	51.9	11.4	105.0	6.43	51.9	.12	63.2	
106.0	6.4	128.7	114	601	100	51.8	11.4	106.0	6.42	51.8	.12	63.2	
107.0	6.4	128.8	114	601	100	51.8	11.4	107.0	6.41	51.7	.12	63.2	
108.0	6.4	128.8	114	601	100	51.8	11.4	108.0	6.40	51.5	.12	63.2	
109.0	6.4	128.9	114	601	100	51.8	11.4	109.0	6.39	51.4	.12	63.2	
110.0	6.4	129.0	114	601	100	51.8	11.4	110.0	6.38	51.3	.12	63.2	
111.0	6.4	129.0	114	601	100	51.8	11.5	111.0	6.38	51.1	.12	63.2	
112.0	6.4	129.1	114	601	100	51.8	11.5	112.0	6.37	51	.12	63.2	
113.0	6.4	129.1	114	601	100	51.8	11.5	113.0	6.36	50.9	.12	63.2	
114.0	6.3	129.2	114	601	100	51.8	11.5	114.0	6.35	50.7	.12	63.2	
115.0	6.3	129.2	114	601	100	51.7	11.5	115.0	6.34	50.6	.12	63.2	
116.0	6.3	129.3	114	601	100	51.7	11.5	116.0	6.33	50.5	.12	63.2	
117.0	6.3	129.3	114	601	100	51.7	11.5	117.0	6.32	50.3	.12	63.2	
118.0	6.3	129.4	114	601	100	51.7	11.5	118.0	6.32	50.2	.12	63.2	
119.0	6.3	129.4	114	601	100	51.7	11.5	119.0	6.31	50.1	.12	63.2	
120.0	6.3	129.5	114	601	100	51.7	11.5	120.0	6.30	49.9	.12	63.2	
121.0	6.3	129.6	114	601	100	51.7	11.5	121.0	6.29	49.8	.12	63.2	
122.0	6.3	129.6	114	601	100	51.7	11.5	122.0	6.28	49.7	.12	63.2	
123.0	6.3	129.7	114	601	100	51.7	11.5	123.0	6.27	49.5	.12	63.2	
124.0	6.3	129.7	114	601	100	51.7	11.5	124.0	6.26	49.4	.12	63.2	
125.0	6.3	129.8	114	601	100	51.7	11.5	125.0	6.25	49.3	.12	63.2	
126.0	6.2	129.8	114	601	100	51.7	11.5	126.0	6.24	49.1	.12	63.2	
127.0	6.2	129.9	114	601	100	51.7	11.5	127.0	6.24	49.0	.12	63.2	
128.0	6.2	129.9	114	601	100	51.7	11.5	128.0	6.23	48.9	.12	63.2	
129.0	6.2	130.0	114	601	100	51.7	11.5	129.0	6.22	48.7	.12	63.2	
130.0	6.2	130.1	114	600	100	51.7	11.5	130.0	6.21	48.6	.12	63.2	
131.0	6.2	130.1	114	600	100	51.7	11.5	131.0	6.20	48.5	.12	63.2	
132.0	6.2	130.2	114	600	100	51.7	11.5	132.0	6.19	48.3	.12	63.2	
133.0	6.2	130.2	114	600	100	51.7	11.5	133.0	6.18	48.2	.12	63.2	
134.0	6.2	130.3	114	600	100	51.7	11.5	134.0	6.17	48.1	.12	63.2	

- GRAY FRIERSON HAERTIG -
TELECOMMUNICATIONS ENGINEERING

ENGINEERING REPORT BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 4
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference		----- KCEN Channel 6 -----					----- Proposed Ch. 206 -----					
--- Site ---		C/R 570 m AAT					C/R 50 m AAT					
Lat 30-38-43		Latitude: 31-16-24					Latitude: 30-38-43					
Lon 96-21-26		Longitude: 97-13-14					Longitude: 96-21-26					
Bear. (deg)	Dist (km)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	U/D (dB)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)
135.0	6.2	130.3	114	600	100	51.7	11.5	135.0	6.16	47.9	.12	63.2
136.0	6.2	130.4	114	600	100	51.7	11.5	136.0	6.17	48.1	.12	63.2
137.0	6.2	130.4	114	600	100	51.7	11.5	137.0	6.19	48.3	.12	63.2
138.0	6.2	130.5	114	600	100	51.7	11.5	138.0	6.20	48.4	.12	63.2
139.0	6.2	130.5	114	600	100	51.7	11.5	139.0	6.21	48.6	.12	63.2
140.0	6.2	130.6	114	600	100	51.7	11.5	140.0	6.22	48.7	.12	63.2
141.0	6.2	130.7	114	600	100	51.7	11.5	141.0	6.23	48.9	.12	63.2
142.0	6.2	130.7	114	600	100	51.7	11.5	142.0	6.24	49.1	.12	63.2
143.0	6.3	130.8	114	600	100	51.8	11.5	143.0	6.25	49.2	.12	63.2
144.0	6.3	130.8	114	600	100	51.8	11.5	144.0	6.26	49.4	.12	63.2
145.0	6.3	130.9	114	600	100	51.8	11.5	145.0	6.27	49.6	.12	63.2
146.0	6.3	130.9	114	600	100	51.8	11.5	146.0	6.28	49.7	.12	63.2
147.0	6.3	131.0	114	600	100	51.8	11.5	147.0	6.29	49.9	.12	63.2
148.0	6.3	131.0	114	600	100	51.8	11.5	148.0	6.31	50.1	.12	63.2
149.0	6.3	131.1	114	600	100	51.8	11.5	149.0	6.32	50.2	.12	63.2
150.0	6.3	131.1	114	600	100	51.8	11.4	150.0	6.33	50.4	.12	63.2
151.0	6.3	131.2	114	600	100	51.8	11.4	151.0	6.34	50.6	.12	63.2
152.0	6.3	131.2	114	600	100	51.8	11.4	152.0	6.35	50.7	.12	63.2
153.0	6.4	131.3	114	600	100	51.8	11.4	153.0	6.36	50.9	.12	63.2
154.0	6.4	131.4	114	600	100	51.8	11.4	154.0	6.37	51.0	.12	63.2
155.0	6.4	131.4	114	600	100	51.8	11.4	155.0	6.38	51.2	.12	63.2
156.0	6.4	131.5	114	600	100	51.9	11.4	156.0	6.39	51.4	.12	63.2
157.0	6.4	131.5	114	600	100	51.9	11.4	157.0	6.40	51.5	.12	63.2
158.0	6.4	131.6	114	600	100	51.9	11.4	158.0	6.41	51.7	.12	63.2
159.0	6.4	131.6	114	600	100	51.9	11.3	159.0	6.42	51.9	.12	63.2
160.0	6.4	131.7	114	600	100	51.9	11.3	160.0	6.43	52.0	.12	63.2
161.0	6.4	131.7	114	600	100	51.9	11.3	161.0	6.44	52.2	.12	63.2
162.0	6.4	131.8	113	600	100	51.9	11.3	162.0	6.45	52.4	.12	63.2
163.0	6.5	131.8	113	600	100	52.0	11.3	163.0	6.46	52.5	.12	63.2
164.0	6.5	131.9	113	600	100	52.0	11.3	164.0	6.46	52.7	.12	63.2
165.0	6.5	131.9	113	600	100	52.0	11.3	165.0	6.47	52.9	.12	63.2
166.0	6.5	132.0	113	600	100	52.0	11.2	166.0	6.48	53.0	.12	63.2
167.0	6.5	132.0	113	600	100	52.0	11.2	167.0	6.49	53.2	.12	63.2
168.0	6.5	132.1	113	600	100	52.0	11.2	168.0	6.50	53.3	.12	63.3
169.0	6.5	132.1	113	600	100	52.1	11.2	169.0	6.51	53.5	.12	63.3
170.0	6.5	132.2	113	600	100	52.1	11.2	170.0	6.52	53.7	.12	63.3
171.0	6.5	132.2	113	600	100	52.1	11.2	171.0	6.53	53.8	.12	63.3
172.0	6.5	132.3	113	600	100	52.1	11.1	172.0	6.54	54	.12	63.3
173.0	6.6	132.3	113	600	100	52.2	11.1	173.0	6.55	54.2	.12	63.3
174.0	6.6	132.4	113	600	100	52.2	11.1	174.0	6.56	54.3	.12	63.3
175.0	6.6	132.4	113	600	100	52.2	11.1	175.0	6.57	54.5	.12	63.3
176.0	6.6	132.5	113	600	100	52.2	11.0	176.0	6.58	54.7	.12	63.3

ENGINEERING REPORT
BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 5
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference		----- KCEN Channel 6 -----						----- Proposed Ch. 206 -----					
--- Site ---		C/R 570 m AAT						C/R 50 m AAT					
Lat 30-38-43		Latitude: 31-16-24						Latitude: 30-38-43					
Lon 96-21-26		Longitude: 97-13-14						Longitude: 96-21-26					
Bear. (deg)	Dist (km)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	U/D (dB)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	
180.0	6.6	132.6	112	600	100	52.3	11.0	180.0	6.62	55.3	.12	63.3	
181.0	6.6	132.7	112	600	100	52.4	10.9	181.0	6.63	55.5	.12	63.3	
182.0	6.6	132.7	112	600	100	52.4	10.9	182.0	6.64	55.8	.12	63.3	
183.0	6.7	132.8	112	600	100	52.4	10.9	183.0	6.66	56.0	.12	63.3	
184.0	6.7	132.8	112	600	100	52.4	10.9	184.0	6.67	56.2	.12	63.3	
185.0	6.7	132.9	112	600	100	52.5	10.8	185.0	6.68	56.5	.12	63.3	
186.0	6.7	132.9	112	600	100	52.5	10.8	186.0	6.69	56.7	.12	63.3	
187.0	6.7	132.9	112	600	100	52.5	10.8	187.0	6.70	56.9	.12	63.3	
188.0	6.7	133.0	112	600	100	52.6	10.8	188.0	6.72	57.2	.12	63.3	
189.0	6.7	133.0	112	599	100	52.6	10.7	189.0	6.73	57.4	.12	63.3	
190.0	6.7	133.1	111	599	100	52.6	10.7	190.0	6.74	57.6	.12	63.3	
191.0	6.7	133.1	111	599	100	52.6	10.7	191.0	6.75	57.9	.12	63.3	
192.0	6.8	133.1	111	599	100	52.7	10.7	192.0	6.76	58.1	.12	63.3	
193.0	6.8	133.2	111	599	100	52.7	10.6	193.0	6.77	58.3	.12	63.3	

ENGINEERING REPORT BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 6
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference		----- KCEN Channel 6 -----					----- Proposed Ch. 206 -----					
--- Site ---		C/R 570 m AAT					C/R 50 m AAT					
Lat 30-38-43		Latitude: 31-16-24					Latitude: 30-38-43					
Lon 96-21-26		Longitude: 97-13-14					Longitude: 96-21-26					
Bear. (deg)	Dist (km)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	U/D (dB)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)
225.0	5.0	132.8	108	600	100	54.0	15.7*	225.0	5.05	65.8	.12	69.6
226.0	5.0	132.8	108	600	100	54.0	15.7*	226.0	5.04	65.6	.12	69.7
227.0	5.0	132.7	107	600	100	54.0	15.7*	227.0	5.03	65.4	.12	69.7
228.0	5.0	132.7	107	600	100	54.0	15.6*	228.0	5.02	65.2	.12	69.7
229.0	5.0	132.7	107	600	100	54.0	15.6*	229.0	5.01	65.0	.12	69.7

ENGINEERING REPORT
BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 7
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference	----- KCEN Channel 6 -----	----- Proposed Ch. 206 -----
--- Site ---	G/R 570 m AAT	G/R 50 m AAT

ENGINEERING REPORT BRAZOS EDUCATIONAL RADIO

8 MARCH 1993

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 8
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Interference		----- KCEN Channel 6 -----						----- Proposed Ch. 206 -----					
--- Site ---		C/R 570 m AAT						C/R 50 m AAT					
Lat 30-38-43		Latitude: 31-16-24						Latitude: 30-38-43					
Lon 96-21-26		Longitude: 97-13-14						Longitude: 96-21-26					
Bear. (deg)	Dist (km)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	U/D (dB)	Bear. (deg)	Dist (km)	Haat (m)	ERP (kW)	F.S. (dBu)	
315.0	3.8	129.9	104	601	100	55.2	14.9*	315.0	3.84	41.0	.12	70.0	
316.0	3.8	129.9	104	601	100	55.2	14.9*	316.0	3.83	40.8	.12	70.1	
317.0	3.8	129.8	104	601	100	55.2	14.9*	317.0	3.83	40.7	.12	70.0	
318.0	3.8	129.8	104	601	100	55.2	14.9*	318.0	3.82	40.6	.12	70.0	
319.0	3.8	129.8	104	601	100	55.2	14.9*	319.0	3.81	40.4	.12	70.1	
320.0	3.8	129.7	104	601	100	55.2	14.9*	320.0	3.81	40.3	.12	70.0	
321.0	3.8	129.7	104	601	100	55.2	14.9*	321.0	3.80	40.2	.12	70.0	
322.0	3.8	129.7	104	601	100	55.2	14.9*	322.0	3.80	40.1	.12	70.0	
323.0	3.8	129.6	104	601	100	55.2	14.9*	323.0	3.79	39.9	.12	70.0	
324.0	3.8	129.6	104	601	100	55.2	14.9*	324.0	3.78	39.8	.12	70.0	
325.0	3.8	129.6	104	601	100	55.2	14.9*	325.0	3.78	39.7	.12	70.0	
326.0	3.8	129.5	104	601	100	55.1	14.9*	326.0	3.77	39.5	.12	70.0	
327.0	3.8	129.5	104	601	100	55.1	14.9*	327.0	3.77	39.4	.12	70.0	
328.0	3.8	129.5	104	601	100	55.1	14.9*	328.0	3.76	39.3	.12	70.0	
329.0	3.8	129.4	104	601	100	55.1	14.9*	329.0	3.75	39.2	.12	70.0	
330.0	3.8	129.4	104	601	100	55.1	14.9*	330.0	3.75	39.0	.12	70.0	
331.0	3.7	129.4	104	601	100	55.1	14.9*	331.0	3.74	38.9	.12	70.0	
332.0	3.7	129.3	104	601	100	55.1	14.9*	332.0	3.74	38.8	.12	70.0	
333.0	3.7	129.3	105	601	100	55.1	15.0*	333.0	3.73	38.7	.12	70.0	
334.0	3.7	129.3	105	601	100	55.1	15.0*	334.0	3.72	38.5	.12	70.0	
335.0	3.7	129.2	105	601	100	55.0	15.0*	335.0	3.72	38.4	.12	70.0	
336.0	3.7	129.2	105	601	100	55.0	15.0*	336.0	3.71	38.3	.12	70.0	
337.0	3.7	129.2	105	601	100	55.0	15.0*	337.0	3.71	38.1	.12	70.0	
338.0	3.7	129.1	105	601	100	55.0	15.0*	338.0	3.70	38.0	.12	70.0	
339.0	3.7	129.1	105	601	100	55.0	15.0*	339.0	3.69	37.9	.12	70.0	
340.0	3.7	129.1	105	601	100	55.0	15.0*	340.0	3.69	37.8	.12	70.0	
341.0	3.7	129.1	105	601	100	55.0	15.0*	341.0	3.68	37.6	.12	70.0	
342.0	3.7	129.0	105	601	100	55.0	15.0*	342.0	3.68	37.5	.12	69.9	
343.0	3.7	129.0	105	601	100	54.9	15.0*	343.0	3.67	37.4	.12	70.0	
344.0	3.7	129.0	105	601	100	54.9	15.0*	344.0	3.67	37.2	.12	69.9	
345.0	3.7	128.9	105	601	100	54.9	15.1*	345.0	3.66	37.1	.12	69.9	
346.0	3.7	128.9	105	601	100	54.9	15.1*	346.0	3.65	37.0	.12	70.0	
347.0	3.7	128.9	105	601	100	54.9	15.1*	347.0	3.65	36.9	.12	69.9	
348.0	3.6	128.9	105	601	100	54.9	15.1*	348.0	3.64	36.7	.12	69.9	
349.0	3.6	128.8	105	601	100	54.9	15.1*	349.0	3.64	36.6	.12	69.9	
350.0	3.6	128.8	105	601	100	54.8	15.1*	350.0	3.63	36.5	.12	69.9	
351.0	3.6	128.8	105	601	100	54.8	15.1*	351.0	3.63	36.4	.12	69.9	
352.0	3.6	128.8	105	601	100	54.8	15.1*	352.0	3.62	36.2	.12	69.9	
353.0	3.6	128.7	105	601	100	54.8	15.1*	353.0	3.62	36.1	.12	69.9	
354.0	3.6	128.7	105	601	100	54.8	15.2*	354.0	3.61	36.0	.12	69.9	
355.0	3.6	128.7	105	601	100	54.8	15.2*	355.0	3.60	35.8	.12	69.9	
356.0	3.6	128.7	105	601	100	54.7	15.2*	356.0	3.60	35.7	.12	69.9	
357.0	3.6	128.7	106	601	100	54.7	15.2*	357.0	3.59	35.6	.12	69.9	
358.0	3.6	128.6	106	601	100	54.7	15.2*	358.0	3.59	35.5	.12	69.9	
359.0	3.6	128.6	106	601	100	54.7	15.2*	359.0	3.58	35.3	.12	69.9	

- GRAY FRIERSON HAERTIG -
TELECOMMUNICATIONS ENGINEERING

Exhibit I (Cont.)

Gray Frierson Haertig
Milwaukie, Oregon

Page 9
March 3, 1993

Title: Educ. Media Fndtn. of Bryan

Educational FM/TV Channel 6 Interference area

Total interference area: 85.7592 sq km (33.1118 sq mi)

Total Population (1990 Census): 74,261